

Appl. No. 09/771,313
Amdt. Dated 11/03/2004
Reply to Office action of 08/03/2004

APP 1237

Amendments to the Specification

Please replace the paragraph beginning at page 6, line 4 with the following:

Turning to FIG. 2 there is depicted a high level view of an exemplary network in accordance with our invention. In FIG. 2 a first network element (NE) 210 is communicating with a second network element 220 over a link 225. Link 225 is preferably an optical link. As will become clearer below, the first and second network elements may be in different domains; for example, network element 210 may be an IP router or host whereas network element 220 may be a SONET Add Drop Multiplexer. Both network elements 210 and 220 are connected via link 228 and 229 to a network management system 230. The connections 228 and 229 are done using an Operating System/Network Element (OS/NE) protocol such as SNMP for IP domain network elements and connection 228 TL-1 for SONET equipment. In addition, the network management system 230 is connected either directly or indirectly to each network element 210 and 220 via a data network 233. Although we show each network element connected to the network management system 230 in FIG. 2, those skilled in the art will recognize that a network management system is usually able to indirectly communicate with several other network elements through the network element, so called gateway, that the network management system is directly connected to.

Please replace the paragraphs beginning at page 7, lines 16 and 22 with the following paragraph:

Turning to FIG. 3 there is illustrated our method for uniquely identifying a network element in a vendor or supplier neutral manner. At block ~~310~~ 320 a model number and a serial number assigned at the factory are electronically encoded on the network element; ~~a network element is assigned two values: a network element model number and a network element serial number. The port numbers are similarly assigned at the factory, block 321.~~ These values are intended to uniquely identify each network element in much the same way that each cellular phone is uniquely identified. As such we refer to these values as a network element's electronic serial number. The model number and serial may be represented by character string in the network element. This step requires each network element to possess the intelligence to realize and know of its own electronic model number and serial number. Although each network element in the Public Switched Telephone Network (PSTN) is assigned a Common Language Equipment Identification (CLEI) ~~codes code~~ and a Common Language Location Identification (CLLI) ~~codes code~~, these codes or values are not presently electronically encoded in the associated network element. More importantly, the current manual process of updating the network topology database is precisely the process of associating the proper CLEI and CLLI code with proper links in the network.

Appl. No. 09/771,313
Amdt. Dated 11/03/2004
Reply to Office action of 08/03/2004

APP 1237

Please replace the paragraph beginning at page 14, line 8, with the following:

We turn now to FIG. 5B to discuss the method for a process initiated update. At block 570 the method begins with a trigger event. The following events can serve as triggers: the network element is powered up or a link is connected or disconnected. Once the trigger event occurs, the network element transmits a message to the network management system to inform the network management system that it will be updating its configuration, block 572. The network element then uses the Far End Protocol to ~~gather information about itself, block 575 discover its port connectivity. The block of information includes~~ This is the same information gathered at block 525 in FIG. 5A and sent to the network management system. Specifically, the information includes the network element model number, network element serial number, and for each connected port on the network element the port identifier, far end network element model number, far end network serial number, and the far end network element port identifier. ~~If a port is a null, then the null packet is sent for that port. The network element then sends the block of information to the network management system, block 580.~~

Please replace the paragraph beginning at page 15, line 16 with the following:

In addition to communicating with switches, routers, and other network elements comprising a network, network management 610 module optionally includes links to downstream fault management, performance management and other administrative systems ~~650~~. The information stored in network management system 610 can be used by these other systems ~~650~~ to perform their respective functions.

Please replace the paragraph beginning at page 16, line 12 with the following:

In particular, network management system 610 by being connected to ATM switch 615, SONET/WDM network element 620, and router 629 can autonomously construct a more accurate network topology. ATM switch 615 would be able to gain knowledge of all its neighboring network elements 620, 622 and 624 by executing our far end protocol over the ~~OC-3 and T1~~ fiber or copper links (meant to eventually carry OC3 or T1) to each of these respective network elements. SONET/WDM ~~220~~ 620 network element would be able to relay connectivity information about its neighboring network elements ~~215~~ 615 and ~~228~~ 628. In addition, router 229 would indicate its connection to network element ~~228~~ 628. As previously discussed, the network elements directly connected to the network management system would also serve as gateways to not only its neighbors but to all the subtending network elements that form part of that domain's network. For example, by being connected to SONET/WDM network element 620 the network management system would be able to construct the entire optical network 666 connected to network element 620.